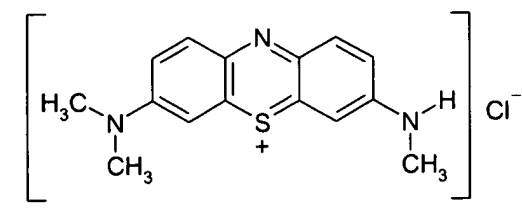


**AMENDMENTS TO THE CLAIMS**

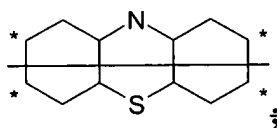
Listing of Claims:

1. (Currently Amended) A method of [ $^{11}\text{C}$ ]-radiolabelling a phenothiazine compound of the following formula:



~~, wherein:~~

~~said compound has a polycyclic core of the following formula:~~



~~said polycyclic core is fully aromatic;~~

~~said compound has a pendant group covalently attached at one of the positions denoted by asterisks (\*) in the above formula;~~

~~said pendant group is independently:~~

- ~~a primary amino group;~~
- ~~a cationic primary imino group;~~
- ~~a secondary amino group;~~
- ~~a cationic secondary imino group;~~
- ~~a primary imino group; or~~
- ~~a secondary imino group;~~

said method comprising the step of ~~reacting~~ said phenothiazine compound with [ $^{11}\text{C}$ ]methyl trifluoromethanesulfonate ( $\text{CF}_3\text{SO}_2\text{O}^{11}\text{CH}_3$ ) in the presence of a Bronsted base

~~;~~ ~~thereby converting said pendant group to a corresponding [ $^{11}\text{C}$ ]methyl-labelled pendant group, respectively:~~

~~a [ $^{11}\text{C}$ ]methyl-labelled secondary amino group;~~

~~a [ $^{11}\text{C}$ ]methyl-labelled cationic secondary imino group;~~

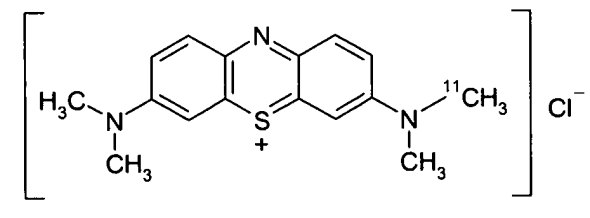
~~a [ $^{11}\text{C}$ ]methyl-labelled tertiary amino group;~~

~~a [ $^{11}\text{C}$ ]methyl-labelled cationic tertiary imino group;~~

~~a [ $^{11}\text{C}$ ]methyl-labelled secondary imino group; or~~

~~a [ $^{11}\text{C}$ ]methyl-labelled cationic tertiary imino group;~~

to give a [ $^{11}\text{C}$ ]-radiolabelled phenothiazine compound of the following formula:



2-92 (Cancelled)

93. (Currently Amended) A method according to claim 1, wherein said Bronsted base is ~~reaction is performed in the presence of an alkali metal carbonate or bicarbonate.~~

94. (Currently Amended) A method according to claim 1, wherein said Bronsted base is ~~reaction is performed in the presence of potassium carbonate.~~

95. (Previously Presented) A method according to claim 1, wherein said reaction is carried out in aqueous media.

96. (Currently Amended) A method according to claim 1, wherein said reaction is carried out by introducing said [ $^{11}\text{C}$ ]methyl trifluoromethanesulfonate into an aqueous solution or

suspension of said phenothiazine compound and said Bronsted base, to form a reaction mixture.

97. (Cancelled)
98. (Currently Amended) A method according to claim 96, wherein said Bronsted base is aqueous solution or suspension further comprises an alkali metal carbonate or bicarbonate.
99. (Currently Amended) A method according to claim 96, wherein said Bronsted base is aqueous solution or suspension further comprises potassium carbonate.
100. (Previously Presented) A method according to claim 96, wherein said reaction mixture is mixed for a mixing time of 1-30 minutes.
101. (Previously Presented) A method according to claim 96, wherein said reaction mixture is mixed for a mixing time of 1-10 minutes.
102. (Previously Presented) A method according to claim 96, wherein said reaction is carried out at 20°C-25°C.
103. (Previously Presented) A method according to claim 96, wherein said reaction is carried out under an inert atmosphere.
104. (Previously Presented) A method according to claim 96, wherein said reaction is carried out under argon.
105. (Currently Amended) A method according to claim 96 +, further comprising the subsequent step of [[:]] purifying said [<sup>11</sup>C]-radiolabelled phenothiazine compound.

106. (Currently Amended) A method according to claim 96 ~~4~~, further comprising the subsequent step of ~~[[:]~~ purifying said [<sup>11</sup>C]-radiolabelled phenothiazine compound using ion exchange methods.
107. (Currently Amended) A method according to claim 96 ~~4~~, further comprising the subsequent step of ~~[[:]~~ purifying said [<sup>11</sup>C]-radiolabelled phenothiazine compound using cation exchange methods.
108. (Currently Amended) A method according to claim 105 ~~4~~, wherein the reaction and ~~optional~~ purification is performed in less than 60 minutes.
109. (Currently Amended) A method according to claim 105 ~~4~~, wherein the reaction and ~~optional~~ purification is performed in less than 45 minutes.
110. (Currently Amended) A method according to claim 105 ~~4~~, wherein the reaction and ~~optional~~ purification is performed in less than 40 minutes.
111. (Currently Amended) A method according to claim 105 ~~4~~, which provides a radiochemical purity greater than 90%.
112. (Currently Amended) A method according to claim 105 ~~4~~, which provides a radiochemical yield of at least 2%.
113. (Currently Amended) A method according to claim 105 ~~4~~, which provides a specific average activity of at least 0.5 GBq/μmol.
114. (Currently Amended) A method according to claim 105 ~~4~~, which is partially or fully automated.
- 115- 125 (Cancelled)